

Meeting of Space Shuttle Dynamic Testing Committee  
September 21-22, 1971 - MSFC

I. Attendees:

1. Members:

Chairman: R. S. Ryan, MSFC, S&E-Aero-D  
N. Showers, MSFC, S&E-Astn-A  
C. T. Modlin, Jr., MSC ES2/C  
S. A. Leadbetter, LRC, LD, DLB, VS  
R. C. Goetz, LRC, LD, AB, ASAS

2. Observers:

L. Kiefling, MSFC, S&E-Aero-DDS  
M. H. Rheinfurth, MSFC, S&E-Aero-DD  
R. Schock, MSFC, S&E-Astn-AAD

II. The purpose of the committee was decided as follows:

Determine and recommend low cost, minimum risk dynamic testing technology requirements for the space shuttle program.

Dynamic testing is defined as that testing necessary for determining the dynamic characteristics (i.e., mode shapes, frequencies, damping) of the primary structural systems.

III. The objectives of the committee were decided as follows:

1. Review existing and potential technology required for dynamic testing of space shuttle vehicles
2. To serve as a focal point of communications regarding dynamic testing of space shuttle vehicles within NASA centers and industry
3. Assess and recommend development of testing procedures (technology) necessary to support the shuttle test program.
4. Assess and recommend development of dynamic test instrumentation necessary to support shuttle test program.
5. Assess and recommend development of necessary analytical tools to utilize test data for analytical analysis.
6. Recommend potential test approaches from technology development standpoint.

IV. Near Term Plan of Action:

1. Each member is to present to the chairman by October 15, 1971, his Center's consensus on (1) what the current technology state-of-the-art is for dynamic testing of shuttle, (2) what should the established requirements be for dynamic testing of shuttle.
2. Each member will be furnished with the final report of a Study of The Space Shuttle Dynamic Test Requirements conducted by Boeing (monitored by J. Everitt, MSFC) and an evaluation by MSFC of this report.



IV. Near Term Plan of Action: (continued)

3. Mr. R. Ryan will unofficially contact the other contractors to solicit their opinions on the technology needed for a space shuttle dynamics testing program.
4. Review of potential FY 73 dynamic testing technology program to be initiated at November 8-9 meeting at ARC, and recommendations to be made at a proposed meeting early in December.

V. Areas of Conflict to be Resolved:

1. Present technology of analysis vs testing techniques
2. Validity of scale model tests, vs full-scale component test vs full-scale vehicle test.
3. Recommending integrated mix of #2 and best approach from a technical standpoint (not cost)
4. How to build in safeguards (i.e., contingency plans) for the dynamic test program. Identify
5. Interface with other discipline technologies

VI. It was recommended that a 1-day mini-symposium of invited papers be given on the subject of Component Synthesis (substructuring techniques). Final decision to be made in November.

VII. Personal Observations:

1. The political in-fighting at MSFC over the chairmanship of the committee seems to have been resolved with S&E-ASTN actively supporting the committee.
2. Bob Ryan seems to be attacking his task as chairman with enthusiasm, and appears to have really wanted the job.
3. While the initial goals of the committee seem to be overly ambitious, the committee should serve to pull together all the bits and pieces associated with dynamic testing being conducted under the cognizance of the Dynamics & Aeroelasticity Technology Group funds into a coherent, unified program. In this respect its recommendations should be valuable to D&A chairman for Steering Committee presentations.
4. The success of impacting overall testing programs lies in facing up to the areas of conflict listed in V. With regard to item V-2, it would appear that Modlin of MSC would be the swing vote.

R. C. Coetz